



PHOENIX METAL FABRICATING

133083
1535 Spruce, Detroit, MI 48216
(313) 961-8709
FAX 961-3065

March 27, 1997

Kris Vezner, Esq.
Assistant Regional Counsel
77 West Jackson Boulevard C-29A
Chicago, IL 60604-3590

RE: Master Metals, Inc Superfund Site

Dear Mr. Vezner:

Per your instructions (during our recent conversation) I am writing to advise you that I believe that the attached correspondence has been sent to the wrong Phoenix Metal. My company is a very small manufacturing company that builds metal boxes or cabinets. That is our only product.

We have never had any business dealings with Master Metals. We have never manufactured, sold, serviced, transported or disposed of batteries. We do not handle lead. We have never deposited any lead bearing materials at MMI or anywhere else.

Please correct your records to remove my company's name and address from the Master Metals file. Thank you for your cooperation and assistance in this matter.

Sincerely,

Richard Elsey
President

312-353-2072



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

MAR 13 1997

REPLY TO THE ATTENTION OF:

SE-5J

CERTIFIED MAIL

RETURN RECEIPT REQUESTED

Phoenix Metal
1535 Spruce Street
Detroit, MI 48216-1261

**Re: Master Metals, Inc. Superfund Site
Administrative Order by Consent and Scope of Work**

Dear Sir or Madam:

Enclosed please find two copies of an Administrative Order by Consent and Scope of Work prepared by the U.S. Environmental Protection Agency ("EPA") under Section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. § 9606. Please return both executed copies of the consent order by April 4, 1997, to Kris Vezner, Assistant Regional Counsel, 77 West Jackson Boulevard C-29A, Chicago, Illinois 60604-3590. Your failure to return two executed copies of the consent order to EPA by that date will be construed as an unwillingness to enter a consent order with EPA. EPA will then proceed accordingly.

EPA has information that you have not yet contacted the PRP steering committee, which is engaged in organizing the response action required by EPA. **We urge you to promptly contact the designated head of the Master Metals PRP steering committee to be**

informed of PRP actions and to discuss your participation. The head of the steering committee is consul for Johnson Controls:

Mr. Dennis Reis
Quarles & Brady
411 East Wisconsin Avenue
Milwaukee, WI 53202
(414) 277-5523

Pursuant to CERCLA Section 107, PRPs are jointly and severally liable for all site-related response costs. A refusal to participate in this Order may have the effect of subjecting you to a later cost recovery or contribution action by U.S. EPA or by other PRPs, pursuant to Sections 107 and 113 of CERCLA, respectively. If you have any questions regarding the Order, feel free to contact Kris Vezner, Assistant Regional Counsel, at (312) 886-6827, or Thomas Alcamo, Remedial Project Manager, at (312) 886-7278.

Sincerely yours,

Donald J. Bruce

for Richard C. Karl, Chief
Emergency Response Branch

Enclosures

cc: Janice A. Carlson, OEPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

IN THE MATTER OF:	)	Docket No.
)	
Master Metals, Inc.	)	ADMINISTRATIVE ORDER BY
Site, Cleveland, Ohio	)	CONSENT PURSUANT TO
	)	SECTION 106 OF THE
	)	COMPREHENSIVE ^d
	)	ENVIRONMENTAL RESPONSE,
Respondents:	)	COMPENSATION, AND
	)	LIABILITY ACT OF 1980,
Listed in Attachment A	)	as amended, 42 U.S.C.
	)	§ 9606(a)
)	

I. JURISDICTION AND GENERAL PROVISIONS

This Order is entered voluntarily by the United States Environmental Protection Agency ("U.S. EPA") and the Respondents. The Order is issued pursuant to the authority vested in the President of the United States by Sections 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended ("CERCLA"), 42 U.S.C. §§ 9606(a), 9607 and 9622. This authority has been delegated to the Administrator of the U.S. EPA by Executive Order No. 12580, January 23, 1987, 52 Fed. Reg. 2923, and further delegated to the Regional Administrators by U.S. EPA Delegation Nos. 14-14-A, 14-14-C and 14-14-D, and to the Director, Superfund Division, Region 5, by Regional Delegation Nos. 14-14-A, 14-14-C and 14-14-D.

This Order requires the Respondents to perform removal actions and to reimburse response costs incurred by the United States in connection with property located at the Master Metals, Inc. (MMI) facility, 2850 W. Third Street, Cleveland, Ohio (the "Facility"). Not addressed by this Order is residential property located at and around 1157, 1159 and 1167 Holmden Avenue, Cleveland, Ohio (the "Holmden Properties"). The Facility and Holmden Properties will be referred to collectively herein as the "Master Metals Site" or the "Site".

This Order requires the Respondents to conduct a two-phased response action at the Master Metals Facility. This Order requires

the Respondents in Phase I to conduct time-critical removal actions pursuant to the National Contingency Plan ("NCP"), 40 C.F.R. Part 300, as amended, and the Superfund Accelerated Cleanup Model ("SACM") guidance, to abate an imminent and substantial endangerment to the public health, welfare or the environment that may be presented by the actual or threatened release of hazardous substances at or from the Master Metals Facility. The specific elements of Phase I are set forth in more detail herein. This Order requires the Respondents in Phase II to conduct an Engineering Evaluation and Cost Analysis ("EE/CA") Report of alternative response actions pursuant to 40 C.F.R. § 300.415(b)(4)(i), and the SACM guidance, to address the environmental concerns in connection with the Master Metals Facility.

A copy of this Order will also be provided to the State of Ohio, which has been notified of the issuance of this Order pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).

Respondents' agreement to perform or actual performance under this Order shall constitute neither an admission of liability, nor an admission of U.S. EPA's findings or determinations contained in this Order, except in a proceeding to enforce the terms of this Order. Respondents agree to comply with and be bound by the terms of this Order. Respondents further agree that they will not contest the basis or validity of this Order or its terms in any action by the United States.

II. PARTIES BOUND

This Order applies to and is binding upon U.S. EPA, and upon Respondents and Respondents' heirs, receivers, trustees, successors and assigns. Any change in ownership or corporate status of any Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter such Respondent's responsibilities under this Order. Respondents are jointly and severally liable for carrying out all activities required by this Order. Compliance or noncompliance by one or more Respondents with any provision of this Order shall not excuse or justify noncompliance by any other Respondent.

Respondents shall ensure that their contractors, subcontractors,

and representatives comply with this Order. Respondents shall be responsible for any noncompliance with this Order.

III. FINDINGS OF FACT

Based on available information, including the Administrative Record in this matter, U.S. EPA hereby finds, and, for purposes of enforceability of this Order, the Respondents stipulate that the factual statutory prerequisites under CERCLA necessary for issuance of this Order only have been met. U.S. EPA's findings and this stipulation include the following:

1. The Master Metals Site is comprised of both the MMI Facility and a nearby residential property area, the Holmden Properties, where MMI lead-bearing materials were deposited as fill.
2. The MMI Facility is located in the "flats" area of downtown Cleveland, in an industrialized sector of the City. This property encompasses 4.3 acres. It is bordered on two sides by railroad tracks, with an LTV Steel facility located immediately to the east and south. The Cuyahoga River is located approximately 1,500 feet to the east. A playground and athletic field is located approximately 1,500 feet to the west and the nearest residential area begins approximately 2,000 feet to the northwest.
3. Persons, including but not limited to the Respondents listed in Attachment A, arranged for disposal or treatment or arranged with a transporter for transport for disposal or treatment of hazardous substances at the MMI Site or accepted hazardous substances for transport to disposal at the MMI Site.
4. The current property owner of the Facility is MMI. The President of MMI is Douglas K. Mickey.
5. National Lead Industries, Inc. (NL) initially constructed the Facility in 1932, building it on slag fill. It owned and operated the Facility as a secondary lead smelter, producing lead alloys from lead-bearing dross and lead scrap materials. NL also engaged in battery cracking as part of its operations.

6. MMI purchased the Facility in 1979. MMI thereafter continued to run the Facility as a secondary lead smelter, receiving lead-bearing materials from off-Site sources. The lead-bearing feed material received by MMI was classified and regulated under the Resource Conservation and Recovery Act ("RCRA"), 42 U.S.C. §§ 6901 et seq., as "D008" hazardous waste. In its operations, MMI used rotary and pot furnaces to convert these lead-bearing materials into lead ingots. Each furnace utilized by MMI contained a baghouse, a pollution screening structure that collected particulate matter from the furnace. The collected dust comprised approximately 60 percent lead. The sludge remaining in the furnaces after smelting was classified and regulated under RCRA as "K069" hazardous waste.
7. By-products from the smelting operation included furnace flux, slag, dross, baghouse fines and furnace sludge. Excluding slag, most of the material was recycled back into the furnaces. Slag was tested and disposed of off-Site. Cooling water was diverted to the City of Cleveland sewer system. Finished lead ingots were stored in the roundhouse at the north end of the property prior to shipment off-Site.
8. MMI had a long history of non-compliance with various state and federal environmental, health and safety laws, as well as a history of poor operating practices; releases of hazardous materials to the environment, including the Facility property, have been documented.
9. On November 19, 1980, MMI filed a "Part A permit" pursuant to RCRA, thereby obtaining "interim status" under RCRA to operate certain of the Facility's waste piles and treatment units, as well as a container-based storage area.
10. MMI filed for Chapter 11 bankruptcy on January 11, 1982, in the United States Bankruptcy Court for the Northern District of Ohio. It subsequently went into reorganization. Prior to November 8, 1985, MMI submitted a Part B RCRA application. However, on November 8, 1985, the hazardous waste piles at the Facility that contained lead-bearing dusts lost interim status for failure to comply with financial requirements of 40 CFR Part 265, Subpart H.

11. The United States filed a complaint for violations of RCRA on June 15, 1987, in the United States Bankruptcy Court for the Northern District of Ohio, seeking closure of the D008/K069 waste piles and compliance with RCRA financial responsibility requirements. On September 4, 1987, MMI and the United States entered a Stipulation to resolve these RCRA violations.
12. In August 1987, MMI submitted a partial closure plan to the United States that included procedures to close the D008 and K069 waste piles. MMI was to submit an additional closure plan to address all other solid waste management units at a later date. As part of the partial closure plan, MMI took subsurface soil samples from the battery storage area waste pile. The soil in this area did contain cadmium and lead, but was not considered toxic according to the U.S. EPA's Environmental Profile ("EP") toxicity criteria. Groundwater was encountered between three and ten feet below ground surface and was found to contain concentrations of lead.
13. On January 15, 1990, MMI entered into a Consent Decree with the United States to resolve continuing RCRA violations. This Consent Decree required, among other things, that MMI properly track all hazardous waste at the Facility; submit annual reports to Ohio EPA; cease battery cracking at the Facility; conduct an investigation to determine subsurface and groundwater conditions at the facility; characterize waste at the Facility; store waste properly; close waste piles containing hazardous waste in accordance with an approved RCRA closure plan; establish closure trust funds or other authorized mechanisms and fund those mechanisms in compliance with RCRA requirements; and establish RCRA-required financial liability coverage.
14. Between January 15, 1990 and August 17, 1990, MMI accumulated over 1,500 alleged violations of the Consent Decree, spanning 19 decree provisions. MMI also committed additional RCRA permit violations during this period, and continued to demonstrate noncompliance with other health and safety standards. Among the incidentals of these violations were MMI's poor handling and control of toxic waste, such that toxic waste remained exposed to the environment at the Facility.

15. In April 1990, MMI submitted to U.S. EPA a revised RCRA "Part B permit" application for closure of various solid waste management units.
16. In August 1990, the United States filed a motion for civil contempt in the District Court for the Northern District of Ohio regarding MMI's Consent Decree violations. The Court denied that motion, granting MMI six months to achieve compliance. The motion for contempt was refiled in January 1991 with the same result. In May 1991, the Court granted the motion, requiring MMI to cease operations in July 1991. However, the Court reconsidered this motion in June and denied the plaintiff government's relief.
17. In addition, on November 9, 1990, the United States demanded by letter from MMI \$2,286,500 in stipulated penalties for MMI's Consent Decree violations from January 15, 1990 to August 17, 1990, according to the Decree's terms. On June 26, 1992, the United States reached its final determination on these stipulated penalties for MMI, reducing MMI's stipulated penalty to \$1,593,000. MMI appealed this determination pursuant to the Decree's provision on dispute resolution to the District Court for the Northern District of Ohio, which never ruled on the penalties. The United States filed a motion to dismiss in October 1996 on the grounds of mootness, which the Court granted in an October 29, 1996 Order.
18. In December 1990, MMI contracted with Compliance Technologies, a consulting firm, to install and sample groundwater monitoring wells on the Master Metals Site. Analytical results from the four monitoring wells indicated that the surrounding groundwater was contaminated at levels greater than the maximum contaminant levels ("MCL") for lead and cadmium established under the Safe Drinking Water Act, 42 U.S.C. § 300f et seq.
19. Analysis of Facility soil samples for total metals and pH by a U.S. EPA-approved laboratory revealed that the Facility soil contained elevated levels of barium, cadmium, chromium, lead and nickel. The southern portion of the Facility near the drum storage area contained concentrations of lead exceeding 10,000 parts per million. Elevated lead levels were also discovered near the battery cracking area.

20. In August 1991, Ohio EPA collected samples of raw materials from the MMI rotary furnace and two waste bins as part of the Consent Decree requirements. These samples contained lead concentrations as high as 5349 mg/l.
21. In July 1992, U.S. EPA contracted with an outside technical assistance team ("TAT") to collect soil samples on and around the Facility property to determine if the Facility contaminants were subject to airborne transport. Analysis of these samples for RCRA metals and Toxicity Characteristic Leachate Procedure ("TCLP") metals by a U.S. EPA-approved laboratory revealed that TCLP lead was present in concentrations more than 200 times greater than the RCRA regulatory level of 5 mg/l, at all sample location points except for one Facility and one off-Facility location. Facility soil samples indicated the presence of TCLP arsenic and cadmium, with one location testing at 115,000 ppm for lead. Surface samples collected from off-Facility near both the Valleyview Apartments complex -- 1,500 feet northwest of the Facility -- and Tremont Valley Park -- 2,000 feet northwest of the Facility -- were found to contain lead concentrations ranging from 148 to 1,850 ppm. The source of this latter lead contamination has not been conclusively traced to MMI.
22. Three ambient air monitors were installed by the Ohio EPA near the facility property in January of 1992. During the first two quarters of 1992, air samples collected from the station immediately downwind of MMI revealed exceedances of the Clean Air Act's ("CAA"), 42 U.S.C. §§ 7401 et seq., National Ambient Air Quality Standards ("NAAQS") for lead. In April and May 1992, four more NAAQS violations were recorded. In July 1992, MMI installed a sprinkler system in an attempt to prevent airborne lead from migrating off the Facility property.
23. On August 3, 1992, Ohio EPA ordered an immediate 30-day shut down of the Facility because of MMI's "life-threatening" violations of the NAAQS for lead. During MMI's shutdown, downwind ambient air monitoring data collected by Ohio EPA registered lead levels in violation of the NAAQS for lead on every day except one. An unknown portion of these NAAQS violations were due to lead-laden Facility dust migrating off-Facility via prevailing winds. To minimize the effects of

wind-blown Facility dust, MMI on September 9, 1992 directed a thorough cleaning of West Third Street.

24. On August 5, 1993, the Ohio EPA director ordered MMI to cease operating the Facility until it could demonstrate compliance. Despite the shutdown of the Facility's furnaces on this date, a U.S. EPA downwind air monitoring station routinely detected elevated lead concentrations as much as 500 times greater than the upwind concentrations and 33 times the NAAQS quarterly average. An unknown portion of these NAAQS violations were due to lead-laden Facility dust migrating off-Facility via prevailing winds.
25. Shortly after MMI was shut down, Bank One of Akron, Ohio took possession of all of MMI's cash collateral and accounts receivable.
26. After MMI's shutdown, MMI and U.S. EPA continued negotiations to resolve MMI's RCRA noncompliance. As part of these negotiations, MMI and Mr. Mickey provided financial information to U.S. EPA.
27. On March 28, 1995, U.S. EPA's RCRA Division deferred the Master Metals Site to CERCLA for cleanup. In an August 22, 1995 letter, MMI withdrew all permits still in effect regarding its operation, effectively terminating its ability to legally treat, store or dispose of hazardous waste at the Facility.
28. Throughout 1995 and 1996, vandals and scavengers visited the Facility on an intermittent basis. Further, in 1995 or 1996, MMI partially demolished one of the Facility structures, leaving piles of rubble, girders and sheet metal standing around the structure's remains.

IV. CONCLUSIONS OF LAW AND DETERMINATIONS

Based on the Findings of Fact set forth above, and the Administrative Record supporting these removal actions, U.S. EPA has determined that:

1. The Master Metals Site is a "facility" as defined by Section

101(9) of CERCLA, 42 U.S.C. § 9601(9).

2. Lead, cadmium, chromium, barium and nickel are "hazardous substances" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).
3. Each Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).
4. Certain Respondents are the present "owners" and "operators" of the Master Metals Site, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20). All Respondents are either persons who at the time of disposal of any hazardous substances owned or operated the Master Metals Site, or who arranged for disposal or treatment or transport for disposal or treatment of hazardous substances at the Master Metals Site. Each Respondent therefore is liable under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a).
5. The conditions described in the Findings of Fact above constitute an actual or threatened "release" of a hazardous substance from the facility and Site into the "environment" as defined by Sections 101(8) and (22) of CERCLA, 42 U.S.C. §§ 9601(8) and (22).
6. The conditions present at the Site constitute a threat to public health, welfare, or the environment based upon the factors set forth in Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan, as amended ("NCP"), 40 C.F.R. § 300.415(b)(2). These factors include, but are not limited to, the following:
 - a. actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants or contaminants; this factor is present at the Site due to the existence of unprocessed lead-bearing waste material in open containers and in open piles at the Site. This material is also scattered loosely about the Site on the ground. This factor is also present at the Site due to the existence of excessive lead levels detected in Site soils. Air monitoring stations near the Facility have shown elevated lead air levels greater than the NAAQS for lead.

- b. hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release; this factor is present at the Site due to the existence of unprocessed lead-bearing waste material in open containers at the Facility.
 - c. high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate; this factor is present at the Site due to the existence of lead at levels as high as 115,000 ppm within the soil at and near the Site.
 - d. weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; this factor is present at the Site due to the existence of lead bearing waste stored on-Site in an uncontrolled and exposed manner as well as the existence of lead-bearing dust on-Site. Air monitoring stations near the Facility have shown lead levels above the NAAQS for lead.
 - e. Other situations or factors that may pose threats to public health or welfare or the environment; this factor is present at the Site due to the existence of several unstable, partially demolished buildings, a result of the partial demolition of several former MMI Facility buildings by MMI. The resulting conditions have created the potential for further lead-bearing wastes to escape into the atmosphere. Due to the overall disrepair of the Facility, the former MMI Facility is also a safety hazard.
7. The actual or threatened release of hazardous substances from the Site may present an imminent and substantial endangerment to the public health, welfare, or the environment within the meaning of Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).
8. The removal actions required by this Order, if properly performed under the terms of this Order, are consistent with the NCP. The removal actions required by this Order are necessary to protect the public health, welfare, or the environment.

V. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law and Determinations, it is hereby ordered and agreed that Respondents shall comply with the following provisions, including but not limited to all documents attached to or incorporated into this Order, and perform the following actions:

1. Designation of Contractor, Project Coordinator, and Remedial Project Manager

Respondents shall perform the removal actions required by this Order themselves or retain contractors to implement the removal actions. Respondents shall notify U.S. EPA of Respondents' qualifications or the name and qualifications of such contractors, whichever is applicable, within 5 business days of the effective date of this Order. Respondents shall also notify U.S. EPA of the names and qualifications of any other contractors or subcontractors retained to perform work under this Order at least five business days prior to commencement of such work. U.S. EPA retains the right to disapprove of any of the contractors and/or subcontractors retained by the Respondents. If U.S. EPA disapproves a selected contractor, Respondents shall retain a different contractor within two business days following U.S. EPA's disapproval and shall notify U.S. EPA of that contractor's name and qualifications within three business days of U.S. EPA's disapproval.

Within 10 business days after the effective date of this Order, the Respondents shall designate a Project Coordinator who shall be responsible for administration of all the Respondents' actions required by the Order. Respondents shall submit the designated coordinator's name, address, telephone number, and qualifications to U.S. EPA. To the greatest extent possible, the Project Coordinator shall be present on-Site or readily available during Site work. U.S. EPA retains the right to disapprove of any Project Coordinator named by the Respondents. If U.S. EPA disapproves a selected Project Coordinator, Respondents shall retain a different Project Coordinator within 10 business days following U.S. EPA's disapproval and shall notify U.S. EPA of that person's name and qualifications within 11 business days of U.S. EPA's disapproval. Receipt by Respondents' Project Coordinator of any notice or communication from U.S. EPA relating to this Order shall constitute receipt by (all) Respondents.

The U.S. EPA has designated Thomas Alcamo, Remedial Response Branch, Region 5, as its Remedial Project Manager (RPM). Respondents shall direct all submissions required by this Order to the RPM at 77 West Jackson Boulevard, Mail Code SR-6J, Chicago, Illinois, 60604-3590, by certified or express mail. Respondents shall also send a copy of all submissions to Kris Vezner, Assistant Regional Counsel, 77 West Jackson Boulevard, Mail Code C-29A, Chicago, Illinois, 60604-3590, and to Bart Ray, Ohio Environmental Protection Agency, Northeast District Office-DERR, 2110 E. Aurora Rd., Twinsburg, OH, 44087. All Respondents are encouraged to make their submissions to U.S. EPA on recycled paper (which includes significant postconsumer waste paper content where possible) using two-sided copies.

U.S. EPA and Respondents shall have the right, subject to the immediately preceding paragraph, to change their designated RPM or Project Coordinator. U.S. EPA shall notify the Respondents, and Respondents shall notify U.S. EPA, as early as possible before such a change is made, but in no case less than 24 hours before such a change. The initial notification may be made orally but it shall be promptly followed by a written notice.

2. Work to Be Performed

In Phase I, Respondents shall perform, at a minimum, the following time-critical removal actions:

- a. Analysis and mapping of waste materials and contamination at the Facility for removal purposes, delineating:
 1. the location of all waste materials and the extent of contamination;
 2. the location of waste materials and contamination by toxicity; and
 3. waste materials and contamination by multimedia migratory potential; this should include but not be limited to an analysis of surface dust and dirt.
- b. Long-term securing of the Facility against trespassers through use of fences, signs and other devices, as necessary.

- c. Excavation, demolition, consolidation, and/or removal of highly contaminated buildings, structures, soils, loose waste materials, loose industrial by-products, construction materials, demolition debris, machinery, garbage, dusts, post-industrial debris and office or industrial equipment, where such actions will reduce the spread of, or direct contact with, the contamination.
- d. Removal of drums, barrels, tanks, or other bulk containers that contain or may contain hazardous substances or pollutants or contaminants where such actions will reduce the likelihood of spillage or of exposure to humans, animals or the food chain.
- e. Containment, treatment, disposal, or incineration of hazardous materials, where such action is necessary to reduce the likelihood of human, animal or food chain exposure.

In Phase II, Respondents shall develop and submit to U.S. EPA an EE/CA Report in accordance with the attached Scope of Work ("SOW"). This SOW is incorporated into and made an enforceable part of this Order.

The EE/CA Report shall be consistent with, at a minimum, U.S. EPA guidance entitled, "Guidance on Conducting Non-Time Critical Removal Actions Under CERCLA", EPA/540-R-93-057, Publication 9360.32, PB 93-963402, dated August 1993.

Once the preferred alternative is chosen through an Action Memorandum developed by the U.S. EPA, in consultation with the Ohio EPA for the non-time critical removal, negotiations will begin with the Settling Defendants to implement the preferred alternative.

2.1 Phase I Work Plan

Within 15 business days after the effective date of this Order, the Respondents shall submit to U.S. EPA for approval and to Ohio EPA a draft Work Plan that is consistent with this Order for performing the Phase I time-critical removal activities set forth above. The draft Work Plan shall provide a description of, and an expeditious schedule for, the actions required by this Order.

U.S. EPA may approve, disapprove, require revisions to, or modify

the draft Work Plan. If U.S. EPA requires revisions, Respondents shall submit a revised draft Work Plan within seven business days of receipt of U.S. EPA's notification of required revisions.

In the event of U.S. EPA disapproval of the revised Work Plan, Respondents may be deemed in violation of this Order; however, approval shall not be unreasonably withheld by U.S. EPA. In such event, U.S. EPA retains the right to conduct its own Work Plan and obtain reimbursement for costs incurred in conducting the Work Plan from the Respondents.

Respondents shall implement the Work Plan as finally approved in writing by U.S. EPA in accordance with the schedule approved by U.S. EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be fully enforceable under this Order. Respondents shall notify U.S. EPA and Ohio EPA at least 48 hours prior to performing any on-Site work pursuant to the U.S. EPA-approved work plan.

Respondents shall not commence or undertake any removal actions at the Site without prior U.S. EPA approval.

2.2 Phase II EE/CA Report

Respondents shall submit the plans and reports required by the attached SOW in accordance with the schedule in the attached SOW. Respondents shall submit these plans and reports to U.S. EPA for approval, with a copy for review to Ohio EPA. These plans and reports shall be consistent with this Order and the SOW.

U.S. EPA may approve, disapprove, require revisions to, or modify any plan or report required by the attached SOW. If U.S. EPA requires revisions, Respondents shall submit a revised EE/CA Report incorporating all of U.S. EPA's required revisions within seven calendar days of receipt of U.S. EPA's notification of the required revisions.

In the event of U.S. EPA disapproval of the revised EE/CA Report, Respondents may be deemed in violation of this Order; however, approval shall not be unreasonably withheld by U.S. EPA. In such event, U.S. EPA retains the right to terminate this Order, conduct a complete EE/CA Report, and obtain reimbursement for costs incurred in conducting the EE/CA Report from the Respondents.

The revised report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this EE/CA Report, the information submitted is true, accurate, and complete.

Respondents shall not commence or undertake any removal actions at the Site without prior U.S. EPA approval.

2.3 Health and Safety Plan

Within 15 business days after the effective date of this Order, the Respondents shall submit to U.S. EPA and Ohio EPA for U.S. EPA review and comment a plan that ensures the protection of the public health and safety during performance of on-Site work under this Order. This plan shall comply with applicable Occupational Safety and Health Administration (OSHA) regulations found at 29 C.F.R. Part 1910. If U.S. EPA determines it is appropriate, the plan shall also include contingency planning. Respondents shall incorporate all changes to the plan recommended by U.S. EPA, and implement the plan during the pendency of the removal action.

2.4 Quality Assurance and Sampling

All sampling and analyses performed pursuant to this Order shall conform to U.S. EPA direction, approval, and guidance regarding sampling, quality assurance/quality control (QA/QC), data validation, and chain of custody procedures. Respondents shall ensure that the laboratory used to perform the analyses participates in a QA/QC program that complies with U.S. EPA guidance.

Upon request by U.S. EPA, Respondents shall have such a laboratory analyze samples submitted by U.S. EPA for quality assurance monitoring. Respondents shall provide to U.S. EPA the quality assurance/quality control procedures followed by all sampling teams and laboratories performing data collection and/or analysis. Respondents shall also ensure provision of analytical tracking information consistent with OSWER Directive No. 9240.0-2B, "Extending the Tracking of Analytical Services to PRP-Lead

Superfund Sites."

Upon request by U.S. EPA, Respondents shall allow U.S. EPA or its authorized representatives to take split and/or duplicate samples of any samples collected by Respondents or their contractors or agents while performing work under this Order. Respondents shall notify U.S. EPA not less than three business days in advance of any sample collection activity. U.S. EPA shall have the right to take any additional samples that it deems necessary.

2.5 Reporting

Respondents shall submit a monthly written progress report to U.S. EPA and Ohio EPA concerning actions undertaken pursuant to this Order, beginning 30 calendar days after the date of U.S. EPA's approval of the Work Plan, until termination of this Order, unless otherwise directed in writing by the RPM. These reports shall describe all significant developments during the preceding period, including the work performed and any problems encountered, analytical data received during the reporting period, and developments anticipated during the next reporting period, including a schedule of work to be performed, anticipated problems, and planned resolutions of past or anticipated problems.

Any Respondent that owns any portion of the Site shall, at least 30 days prior to the conveyance of any interest in real property at the Site, give written notice of this Order to the transferee and written notice of the proposed conveyance to U.S. EPA and Ohio EPA. The notice to U.S. EPA and Ohio EPA shall include the name and address of the transferee. The party conveying such an interest shall require that the transferee will provide access as described in Section V.3 (Access to Property and Information).

2.6 Additional Work

In the event that the U.S. EPA or the Respondents determine that additional work, including EE/CA support sampling and/or an engineering evaluation, is necessary to accomplish the objectives of the EE/CA Report, notification of such additional work shall be provided to the other parties in writing. Any additional work that Respondents determine to be necessary shall be subject to U.S. EPA's written approval prior to commencement of the additional work. Respondents shall complete any additional work that they

have proposed, in accordance with standards, specifications and schedules that U.S. EPA has approved in writing. Respondents also shall complete any additional work that U.S. EPA has determined to be necessary and has provided written notice of pursuant to this paragraph, in accordance with standards, specifications and schedules as approved in writing by U.S. EPA.

2.7 Final Report

Within 60 calendar days after completion of all removal actions required under this Order, the Respondents shall submit to U.S. EPA and Ohio EPA for U.S. EPA review a final report summarizing the actions taken to comply with this Order. The final report shall conform to the requirements set forth in Section 300.165 of the NCP, 40 CFR § 300.165. The final report shall also include a good faith estimate of total costs incurred in complying with the Order, a listing of quantities and types of materials removed off-Site or handled on-Site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destinations of those materials, a presentation of the analytical results of all sampling and analyses performed, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits).

The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

Under penalty of law, I certify that, to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of this report, the information submitted is true, accurate, and complete.

3. Access to Property and Information

Respondents shall provide or obtain access to the Site and off-Site areas to which access is necessary to implement this Order, and shall provide access to all records and documentation related to the conditions at the Site and the actions conducted pursuant to this Order. Such access shall be provided to U.S. EPA employees, contractors, agents, consultants, designees, representatives, and State of Ohio representatives, the latter including Ohio EPA.

These individuals shall be permitted to move freely at the Site and appropriate off-Site areas in order to conduct actions which U.S. EPA determines to be necessary. Respondents shall submit to U.S. EPA, upon request, the results of all sampling or tests and all other data generated by Respondents or their contractors, or on the Respondents' behalf during implementation of this Order.

Where work under this Order is to be performed in areas owned by or in possession of someone other than Respondents, Respondents shall use their best efforts to obtain all necessary access agreements within 14 calendar days after the effective date of this Order, or as otherwise specified in writing by the RPM. Respondents shall immediately notify U.S. EPA if, after using their best efforts, they are unable to obtain such agreements. Respondents shall describe in writing their efforts to obtain access. U.S. EPA may then assist Respondents in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as U.S. EPA deems appropriate. Respondents shall reimburse U.S. EPA for all costs and attorneys fees incurred by the United States in obtaining such access.

4. Record Retention, Documentation, Availability of Information

Respondents shall preserve all documents and information in their possession or the possession of their contractors, subcontractors or representatives, relating to work performed under this Order, or relating to the hazardous substances found on or released from the Site, for six years following completion of the removal actions required by this Order. At the end of this six year period and at least 60 days before any document or information is destroyed, Respondents shall notify U.S. EPA that such documents and information are available to U.S. EPA for inspection, and upon request, shall provide the originals or copies of such documents and information to U.S. EPA. In addition, Respondents shall provide documents and information retained under this Section at any time before expiration of the six year period at the written request of U.S. EPA.

5. Off-Site Shipments

All hazardous substances, pollutants or contaminants removed off-Site pursuant to this Order for treatment, storage or disposal shall be treated, stored, or disposed of at a facility in

compliance, as determined by U.S. EPA, with the U.S. EPA Off-Site Rule, 40 C.F.R. § 300.440, 58 Fed. Reg. 49215 (Sept. 22, 1993).

6. Compliance With Other Laws

Respondents shall perform all actions required pursuant to this Order in accordance with all applicable local, state, and federal laws and regulations except as provided in CERCLA Section 121(e), 42 U.S.C. § 9621(e), and 40 C.F.R. § 300.415(I). In accordance with 40 C.F.R. § 300.415(I), all on-Site actions required pursuant to this Order shall, to the extent practicable, as determined by U.S. EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws.

7. Emergency Response and Notification of Releases

If any incident, or change in Site conditions during the activities conducted pursuant to this Order causes or threatens to cause an additional release of hazardous substances from the Site or an endangerment to the public health, welfare, or the environment, the Respondents shall immediately take all appropriate action to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondents shall also immediately notify the RPM or, in the event of his unavailability, shall notify the Regional Duty Officer, Emergency Response Branch, Region 5 at (312) 353-2318, of the incident or Site conditions. If Respondents fail to immediately take all appropriate actions, U.S. EPA may respond to the release or endangerment and reserve the right to recover costs associated with that response.

Respondents shall submit a written report to U.S. EPA and Ohio EPA within seven business days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. Respondents shall also comply with any other notification requirements, including those in CERCLA Section 103, 42 U.S.C. § 9603, and Section 304 of the Emergency Planning and Community Right-To-Know Act, 42 U.S.C. § 11004.

VI. AUTHORITY OF THE U.S. EPA REMEDIAL PROJECT MANAGER

The RPM shall be responsible for overseeing the implementation of this Order. The RPM shall have the authority vested in an RPM by the NCP, including the authority to halt, conduct, or direct any work required by this Order, or to direct any other response action undertaken by U.S. EPA or Respondents at the Site. Absence of the RPM from the Site shall not be cause for stoppage of work unless specifically directed by the RPM.

VII. REIMBURSEMENT OF COSTS

Respondents shall pay all past response costs, and oversight costs, of the United States related to the Site that are not inconsistent with the NCP. As soon as practicable after the effective date of this Order, U.S. EPA will send Respondents a bill for "past response costs" at the Site. U.S. EPA's bill will include an Itemized Cost Summary. "Past response costs" are all costs, including, but not limited to, direct and indirect costs and interest, that the United States, its employees, agents, contractors, consultants, and other authorized representatives incurred and paid with regard to the Site prior to the date through which the Itemized Cost Summary runs.

In addition, U.S. EPA will send Respondents a bill for "oversight costs" on an annual basis. "Oversight costs" are all costs, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this AOC. "Oversight costs" shall also include all costs, including direct and indirect costs, paid by the United States in connection with the Site between the date through which the U.S. EPA's Itemized Cost Summary for "past response costs" ran and the effective date of this AOC.

Respondents shall, within 30 calendar days of receipt of a bill, remit a cashier's or certified check for the amount of the bill made payable to the "Hazardous Substance Superfund," to the following address:

U.S. Environmental Protection Agency

Superfund Accounting
P.O. Box 70753
Chicago, Illinois 60673

Respondents shall simultaneously transmit a copy of the check to the Director, Superfund Division, U.S. EPA Region 5, 77 West Jackson Blvd., Chicago, Illinois, 60604-3590. Payments shall be designated as "Response Costs - Master Metals Site" and shall reference the payors' names and addresses, the U.S. EPA site identification number (number), and the docket number of this Order.

In the event that any payment is not made within the deadlines described above, Respondents shall pay interest on the unpaid balance. Interest is established at the rate specified in Section 107(a) of CERCLA, 42 U.S.C. § 9607(a). The interest shall begin to accrue on the date of the Respondents' receipt of the bill (or for past response costs, on the effective date of this Order). Interest shall accrue at the rate specified through the date of the payment. Payments of interest made under this paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondents' failure to make timely payments under this Section.

Respondents may dispute all or part of a bill for oversight costs submitted under this Order, if Respondents allege that U.S. EPA has made an accounting error, or if Respondents allege that a cost item is inconsistent with the NCP.

If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondents shall pay the full amount of the uncontested costs into the Hazardous Substance Fund as specified above on or before the due date. Within the same time period, Respondents shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondents shall simultaneously transmit a copy of both checks to the RPM. Respondents shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within 20 calendar days after the dispute is resolved.

VIII. DISPUTE RESOLUTION

The parties to this Order shall attempt to resolve, expeditiously and informally, any disagreements concerning this Order.

If the Respondents object to any U.S. EPA action taken pursuant to this Order, including billings for response costs, the Respondents shall notify U.S. EPA in writing of their objection within 10 calendar days of such action, unless the objections have been informally resolved. This written notice shall include a statement of the issues in dispute, the relevant facts upon which the dispute is based, all factual data, analysis or opinion supporting Respondents' position, and all supporting documentation on which Respondents rely (hereinafter the "Statement of Position").

U.S. EPA and Respondents shall within 15 calendar days of U.S. EPA's receipt of the Respondents' Statement of Position, attempt to resolve the dispute through formal negotiations (Negotiation Period). The Negotiation Period may be extended at the sole discretion of U.S. EPA. U.S. EPA's decision regarding an extension of the Negotiation Period shall not constitute a U.S. EPA action subject to dispute resolution or a final Agency action giving rise to judicial review.

An administrative record of any dispute under this Section shall be maintained by U.S. EPA. The record shall include the written notification of such dispute, and the Statement of Position served pursuant to the preceding paragraph.

Any agreement reached by the parties pursuant to this Section shall be in writing, signed by all parties, and shall upon the signature by the parties be incorporated into and become an enforceable element of this Order. If the parties are unable to reach an agreement within the Negotiation Period, U.S. EPA will issue a written decision on the dispute to the Respondents. The decision of U.S. EPA shall be incorporated into and become an enforceable element of this Order upon Respondents' receipt of the U.S. EPA decision regarding the dispute.

Respondents' obligations under this Order shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondents shall fulfill the requirement that was the

subject of the dispute in accordance with the agreement reached or with U.S. EPA's decision, whichever occurs. No U.S. EPA decision made pursuant to this Section shall constitute a final Agency action giving rise to judicial review.

IX. FORCE MAJEURE

Respondents agree to perform all requirements under this Order within the time limits established under this Order, unless the performance is delayed by a force majeure. For purposes of this Order, a force majeure is defined as any event arising from causes beyond the control of Respondents or of any entity controlled by Respondents, including but not limited to their contractors and subcontractors, that delays or prevents performance of any obligation under this Order despite Respondents' best efforts to fulfill the obligation. Force majeure does not include financial inability to complete the work or increased cost of performance.

Respondents shall notify U.S. EPA orally within 24 hours after Respondents become aware of any event that Respondents contend constitutes a force majeure, and in writing within seven calendar days after the event. Such notice shall: identify the event causing the delay or anticipated delay; estimate the anticipated length of delay, including necessary demobilization and re-mobilization; state the measures taken or to be taken to minimize the delay; and estimate the timetable for implementation of the measures. Respondents shall take all reasonable measures to avoid and minimize the delay. Failure to comply with the notice provision of this Section shall be grounds for U.S. EPA to deny Respondents an extension of time for performance. Respondents shall have the burden of demonstrating by a preponderance of the evidence that the event is a force majeure, that the delay is warranted under the circumstances, and that best efforts were exercised to avoid and mitigate the effects of the delay.

If U.S. EPA determines a delay in performance of a requirement under this Order is or was attributable to a force majeure, the time period for performance of that requirement shall be extended as deemed necessary by U.S. EPA. Such an extension shall not alter Respondents' obligation to perform or complete other tasks required by the Order which are not directly affected by the force majeure.

X. STIPULATED AND STATUTORY PENALTIES

For each day, or portion thereof, that Respondents fail to fully perform any requirement of this Order in accordance with the schedule established pursuant to this Order, Respondents shall be liable as follows:

<u>Deliverable/Activity</u>	<u>Penalty For Days 1-7</u>	<u>Penalty For More Than 7 Days</u>
Failure to Submit a Draft Work Plan or EE/CA Report	\$750/Day	\$2,000/Day
Failure to Submit a Revised Work Plan or EE/CA Report	\$750/Day	\$2,000/Day
Late Submittal of Progress Reports or Other Miscellaneous Reports/Submittals	\$200/Day	\$500/Day
Failure to Meet any Scheduled Deadline in the Order	\$200/Day	\$500/Day

Upon receipt of written demand by U.S. EPA, Respondents shall make payment to U.S. EPA within 20 days and interest shall accrue on late payments in accordance with Section VII of this Order (Reimbursement of Costs).

Even if violations are simultaneous, separate penalties shall accrue for separate violations of this Order. Penalties accrue and are assessed per violation per day. Penalties shall accrue regardless of whether U.S. EPA has notified Respondents of a violation or act of noncompliance. The payment of penalties shall

not alter in any way Respondents' obligations to complete the performance of the work required under this Order. Stipulated penalties shall accrue, but need not be paid, during any dispute resolution period concerning the particular penalties at issue. If Respondents prevail upon resolution, Respondents shall pay only such penalties as the resolution requires. In its unreviewable discretion, U.S. EPA may waive its rights to demand all or a portion of the stipulated penalties due under this Section. Such a waiver must be made in writing.

The stipulated penalties set forth above shall not be the sole or exclusive remedy for violations of this Order. Violation of any provision of this Order may subject Respondents to civil penalties of up to \$25,000 per violation per day, as provided in Section 106(b)(1) of CERCLA, 42 U.S.C. § 9606(b)(1). Respondents may also be subject to punitive damages in an amount up to three times the amount of any cost incurred by the United States as a result of such violation, as provided in Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Should Respondents violate this Order or any portion hereof, U.S. EPA may carry out the required actions unilaterally, pursuant to Section 104 of CERCLA, 42 U.S.C. § 9604, and/or may seek judicial enforcement of this Order pursuant to Section 106 of CERCLA, 42 U.S.C. § 9606.

XI. RESERVATION OF RIGHTS

Except as specifically provided in this Order, nothing herein shall limit the power and authority of U.S. EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the Site. Further, nothing herein shall prevent U.S. EPA from seeking legal or equitable relief to enforce the terms of this Order. U.S. EPA also reserves the right to take any other legal or equitable action as it deems appropriate and necessary, or to require the Respondents in the future to perform additional activities pursuant to CERCLA or any other applicable law.

XII. OTHER CLAIMS

By issuance of this Order, the United States and U.S. EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondents. The United States or U.S. EPA shall not be a party or be held out as a party to any contract entered into by the Respondents or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out activities pursuant to this Order.

Except as expressly provided in Section XIII (Covenant Not To Sue), nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against the Respondents or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or the common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106(a) or 107(a) of CERCLA, 42 U.S.C. §§ 9606(a), 9607(a).

This Order does not constitute a preauthorization of funds under Section 111(a)(2) of CERCLA, 42 U.S.C. § 9611(a)(2). The Respondents waive any claim to payment under Sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611, and 9612, against the United States or the Hazardous Substance Superfund arising out of any action performed under this Order.

No action or decision by U.S. EPA pursuant to this Order shall give rise to any right to judicial review except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XIII. COVENANT NOT TO SUE

Except as otherwise specifically provided in this Order, upon issuance of the U.S. EPA notice referred to in Section XVII (Notice of Completion), U.S. EPA covenants not to sue Respondents for judicial imposition of damages or civil penalties or to take administrative action against Respondents for any failure to perform removal actions agreed to in this Order except as otherwise reserved herein.

Except as otherwise specifically provided in this Order, in

consideration and upon Respondents' payment of the response costs specified in Section VII of this Order, U.S. EPA covenants not to sue or to take administrative action against Respondents under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), for recovery of past and oversight costs incurred by the United States in connection with this removal action and this Order. This covenant not to sue shall take effect upon the receipt by U.S. EPA of the payments required by Section VII (Reimbursement of Costs).

These covenants not to sue are conditioned upon the complete and satisfactory performance by Respondents of their obligations under this Order. These covenants not to sue extend only to the Respondents and do not extend to any other person.

XIV. CONTRIBUTION PROTECTION

With regard to claims for contribution against Respondents for matters addressed in this Order, the Parties hereto agree that the Respondents are entitled to protection from contribution actions or claims to the extent provided by Section 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4).

Nothing in this Order precludes Parties from asserting any claims, causes of action or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XV. INDEMNIFICATION

Respondents agree to indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action: (A) arising from, or on account of, acts or omissions of Respondents and Respondents' officers, heirs, directors, employees, agents, contractors, subcontractors, receivers, trustees, successors or assigns, in carrying out actions pursuant to this Order; and (B) for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between any one or more of Respondents, and any persons for performance of work on or relating to the Site; including claims on account of construction delays. Nothing in this Order, however, requires indemnification by Respondents for any claim or cause of action against the United States based on negligent action taken solely

and directly by U.S. EPA (not including oversight or approval of plans or activities of the Respondents).

XVI. MODIFICATIONS

Except as otherwise specified in Sections V.2., V.2.1 and V.2.2 (Work To Be Performed, Work Plan and EE/CA Report), if any party believes modifications to any plan or schedule are necessary during the course of this project, that party shall conduct informal discussions regarding such modifications with the other parties. Any agreed-upon modifications to any plan or schedule shall be memorialized in writing within seven business days; however, the effective date of the modification shall be the date of the RPM's oral direction. Any other requirements of this Order may be modified in writing by mutual agreement of the parties. Any modification to this Order shall be incorporated into and made an enforceable part of this Order.

If Respondents seek permission to deviate from any approved plan or schedule, Respondents' Project Coordinator shall submit a written request to U.S. EPA for approval outlining the proposed modification and its basis.

No informal advice, guidance, suggestion, or comment by U.S. EPA regarding reports, plans, specifications, schedules, or any other writing submitted by the Respondents shall relieve Respondents of their obligations to obtain such formal approval as may be required by this Order, and to comply with all requirements of this Order unless it is formally modified.

XVII. NOTICE OF COMPLETION

When U.S. EPA determines, after U.S. EPA's review of the Final Report, that all work has been fully performed in accordance with this Order, except for certain continuing obligations required by this Order (e.g., record retention, payment of costs), U.S. EPA will provide written notice to the Respondents. If U.S. EPA determines that any removal activities have not been completed in accordance with this Order, U.S. EPA will notify the Respondents, provide a list of the deficiencies, and require that Respondents modify the Work Plan or the revised EE/CA Report if appropriate to

correct such deficiencies.

XVIII. SUBMITTALS/CORRESPONDENCE

Any notices, documents, information, reports, plans, approvals, disapprovals, or other correspondence required to be submitted from one party to another under this Order, shall be deemed submitted either when hand-delivered or as of the date of receipt by certified mail/return receipt requested, express mail, or facsimile.

Submissions to Respondents shall be addressed to:

With copies to:

Submissions to U.S. EPA shall be addressed to:

Thomas Alcamo
U.S. EPA - Region 5
77 West Jackson Boulevard, SR-6J
Chicago, Illinois 60604-3590

With copies to:

Kris Vezner
Assistant Regional Counsel
U.S. EPA - Region 5
77 W. Jackson Boulevard, C-29A
Chicago, Illinois 60604-3590

Submissions to Ohio EPA shall be addressed to:

Bart Ray
Ohio EPA
Northeast District Office-DERR
2110 E. Aurora Rd.
Twinsburg OH 44087

XIX. SEVERABILITY

If a court issues an order that invalidates any provision of this Order or finds that Respondents have sufficient cause not to comply with one or more provisions of this Order, Respondents shall remain bound to comply with all provisions of this Order not invalidated by the court's order.

XX. EFFECTIVE DATE

This Order shall be effective upon signature by the Director, Superfund Division, U.S. EPA Region 5.

IN THE MATTER OF:

Master Metals, Inc.
Cleveland, Ohio

SIGNATORIES

Each undersigned representative of a signatory to this Administrative Order on Consent certifies that he or she is fully authorized to enter into the terms and conditions of this Order and to bind such signatory, its directors, officers, employees, agents, successors and assigns, to this document.

Agreed this _____ day of _____, 199_.

By _____
(Signature)

Print: Name: _____
 On Behalf of: _____
 Address: _____

IT IS SO ORDERED AND AGREED

BY: _____
William E. Muno, Director
Waste Management Division
United States
Environmental Protection Agency
Region 5

DATE: _____

ATTACHMENT A

Master Metals PRP List	
#	Facility Name
1	A-1 Battery Shop
2	ATR Wire & Cable
3	Adelstein Metals
4	Air Foil Forging
5	Alcolac, Inc.
6	All Power Battery
7	Alpha Metals, Inc.
8	America Matsushita Electric Corporation
9	American National Can
10	American Plating Company
11	American Spring Wire Corporation
12	Anchor Glass Container Corporation
13	Anchor Swann
14	Anzon Lead Co., Inc.
15	Arcon Equipment
16	Atlantic Battery
17	Batteries for Industries
18	Battery Builders
19	Battery Lead Salvage
20	Battery Systems, Inc.
21	Big Four Metals
22	Bulldog Battery
23	Canal Refining Company, Inc.

Master Metals PRP List

#	Facility Name
24	Carlson Tool
25	Central Can Company
26	Century Supply Company
27	Clark Lift of Buffalo
28	Continental Can Company
29	Costin Industrial Equipment
30	Crown Battery
31	Crown Cork and Seal
32	Danny Isbell
33	Davies Can Company
34	DC Services & Sales
35	DC Systems
36	Decker Salvage
37	Doug Micky - Master Metals
38	Du Pont
39	Duquesne Light Company
40	Eastwing Manufacturing Company
41	Eastwood Painting, Inc.
42	Electrical Energy Service
43	ESB - Rayovac
44	Federated Fry Metals
45	Ford Motor
46	Fusion, Inc.
47	General Cable
48	General Dynamics

Master Metals PRP List

#	Facility Name
49	Globe Union
50	Great Lakes Response
51	GTI Corporation
52	Goodyear Corporate Headquarters
53	Gould, Inc.
54	HEB Food & Drug
55	Heekin Can Company
56	Industrial Battery & Charge
57	Industrial Battery Equipment
58	Industrial Battery of Flint
59	Iowa Battery Company
60	Jaite
61	Johnson Controls
62	Keystone Resources
63	KW Battery
64	Lenox China
65	Lincoln Metals Processing Company
66	Lorain Products
67	Maine Scrap Metal, Incorporated
68	Mark C. Pope & Associates
69	Mark Hewitt
70	Metal Control
71	Metallic Recycling
72	Miami Industrial Trucks

Master Metals PRP List

#	Facility Name
73	Morgan Matroc VerNotron Division
74	National Can Company
75	National Smelting & Refining
76	Newcastle Battery
77	Non-Ferous Processing Corporation
78	North American Wire
79	Northwest Industrial Batteries
80	NL Industries
81	NY State Transit Agency
82	Ohio Lift Truck
83	Ohio Motor Transit Company
84	OHM Resource Recovery Corporation
85	Owens Illinois
86	Parker Hannifin
87	Peizokinetics
88	Phillips Display Components Company
89	Phoenix Metals
90	Power Battery
91	Power Source
92	Prestolite Battery
93	QC Corporation
94	RCA Corporation
95	Regency Battery
96	Remington Arms

Master Metals PRP List

#	Facility Name
97	Republic Battery
98	Republic Lead
99	Rivard Sales Company, Incorporated
100	Sam Allen & Son
101	Samsel Services Company
102	Schloss Paving
103	Seitzinger
104	Seneca Wire Manufacturing
105	Service Parts & Exchange
106	Sony Manufacturing Company of America
107	Sperry Corporation (Unisys)
108	St. George Crystal
109	Starkist Caribe, Inc.
110	Strongheart Products, Inc.
111	Stumps Scrap Yard
112	Superior Chemical and Supply
113	Teknor Apex Company
114	Tesoro Petro Company
115	Textron
116	Thomson Consumer Electronics
117	Toshiba Display Devices
118	T. T. Corporation
119	U. S. Can Company
120	U.S. Department of Energy
121	U.S. Steel

Master Metals PRP List	
122	Vernitron
123	Victory White
124	Weinheimer Industrial Battery
125	Win Industrial Battery
126	World Metals
127	Zenith
128	Zuckerman Company

**SCOPE OF WORK FOR ENGINEERING EVALUATION/COST ANALYSIS
AT
MASTER METALS, INC. SITE
CLEVELAND, OHIO**

I. PURPOSE

The purpose of this Scope of Work (SOW) is to set forth requirements for the preparation of an Engineering Evaluation/Cost Analysis (EE/CA) which shall evaluate alternatives for conducting a removal action at a portion of the Master Metals, Incorporated Site. Respondents shall furnish all personnel, materials, and services necessary for, or incidental to, performing the EE/CA at the Master Metals, Inc. Site, except as otherwise specified herein.

II. SITE BACKGROUND

The Master Metals, Incorporated ("MMI") Site is comprised of both (a) the MMI facility property and surrounding areas (the "Facility") and (b) a nearby set of residential properties and surrounding areas where MMI lead-bearing materials were deposited as fill (the "Holmden Properties"). Though the Holmden Properties are part of the Site, the work associated with this SOW addresses only the Facility and not the Holmden Properties.

The MMI Facility is located in the "flats" area of downtown Cleveland, in an industrialized sector of the City. This property encompasses 4.3 acres. It is bordered on two sides by railroad tracks, with an LTV Steel facility located immediately to the east and south. The Cuyuhoga River is located approximately 1,500 feet to the east. A playground and athletic field is located approximately 1,500 feet to the west. The nearest residential area begins approximately 2,000 feet to the northwest.

Areas of contamination:

MMI Facility: sampling and testing of Site soils by Ohio EPA and U.S. EPA have revealed extensive lead soil and groundwater contamination at the Facility. Arsenic, cadmium and other metals are also present in the soil. Numerous specific Facility buildings and waste storage areas on the Facility are also contaminated with lead. The Facility also has several areas still containing lead waste open and exposed to the environment. The Facility's dust is lead-bearing and toxic.

Site History:

1932: National Lead constructs the Facility on a slag fill. It operates the Facility as a secondary lead smelter and engages in battery cracking as part of its operations.

- 1979: MMI purchases the Facility, continuing to run it as a secondary lead smelter; MMI receives lead-bearing materials from off-Site sources.
- 1980: MMI files a Part A permit to obtain interim operating status under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 et seq.
- 1985: MMI submits Part B permit application. MMI loses RCRA interim operating status (suffers LOIS).
- 1987: MMI submits a partial closure plan to U.S. EPA. U.S. EPA conducts an investigation of the Facility as part of the plan.
- 1990: MMI contractor conducts an investigation of the Facility.
- 1991: Ohio EPA conducts an investigation of the Facility.
- 1992: U.S. EPA technical assistance team and Ohio EPA conduct separate investigations of the Facility.
- 1993: Ohio EPA shuts down the Facility; U.S. EPA conducts an investigation of the Facility.
- 1995: U.S. EPA internally defers the Site from RCRA to CERCLA; MMI formally withdraws its remaining permits, effectively terminating its ability to legally handle hazardous waste.

III. SCOPE

Respondents shall complete the following tasks as part of this EE/CA:

- Task 1. EE/CA Work Plan
- Task 2. EE/CA Support Sampling Plan
- Task 3. EE/CA Support Sampling
- Task 4. EE/CA Data Report
- Task 5. EE/CA Report

TASK 1: EE/CA WORK PLAN:

As described in Section IV., Deliverables, the Respondents shall submit a Work Plan for the EE/CA. The objective of the Work Plan is to provide U.S. EPA with a project description and outline of the overall technical approach for completing the EE/CA. The work plan shall identify all tasks, budget, and schedule to accomplish the Scope of Work. The plan shall document the responsibility and authority of all organizations and key personnel involved with the

implementation of the Work Plan and shall include a description of the qualifications of key personnel involved with the EE/CA. Work plan preparation shall require coordination and review and approval by U.S. EPA.

As an attachment to the Work Plan, Respondents shall prepare a Site safety plan which is designed to protect on-Site personnel, area residents and nearby workers from physical, chemical and all other hazards posed by this event. The safety plan shall develop the performance levels and criteria necessary to address the following areas:

- General requirements
- Personnel
- Levels of protection
- Safe work practices and safe guards
- Medical surveillance
- Personal and environmental air monitoring
- Personal hygiene
- Decontamination - personal and equipment
- Site work zones
- Contaminant control
- Contingency and emergency planning
- Logs, reports and record keeping

The safety plan shall at a minimum follow U.S. EPA guidance, including but not limited to the document Standard Operating Safety Guides (Publication 9285.1-03, PB92-963414, June 1992), as well as all OSHA requirements as outlined in 29 CFR 1910. The Site Safety Plan for the time-critical removal action may be updated to reflect this non-time critical removal action.

TASK 2: EE/CA SUPPORT SAMPLING PLAN

Respondents shall submit a Support Sampling Plan pursuant to the schedule in the Deliverables section that addresses all data acquisition activities. The objective of the EE/CA support sampling is to further determine the extent of contamination from the MMI Facility for on-Site and off-Site soil, groundwater and sewer system facilities, piping and media. The Holmden Properties will not be part of this support sampling. Respondents shall include any necessary sampling beyond previous soil and groundwater sampling. Previous sampling events shall be used to assist in determining future sampling locations. The plan shall contain a description of equipment specifications, required analyses, sample types, and sample locations and frequency. The plan shall address specific hydrologic, hydrogeologic, and air transport characterization methods including, but not limited to, field screening, drilling and well installation, flow determination, and soil/water/sludge sampling to determine extent of contamination.

Respondents shall identify the data requirements of specific remedial technologies that may be necessary to evaluate removal activities in the EE/CA. Respondents shall provide a schedule stating when events will take place and when the EE/CA Data Report will be submitted.

The EE/CA Support Sampling Plan shall include the following information:

A. *Site Background*

A brief summary of the Facility location, general Facility physiography, hydrology and geology shall be included. A description of the data already available shall be included which will highlight the areas of known contamination and the levels detected. Tables shall be included to display the minimum and maximum levels of detected contaminants across the Facility.

B. *Data Gap Description*

Respondents shall make an analysis of the currently available data to determine the areas of the Facility which require additional data in order to define the extent of contamination for purposes of implementing a removal action. A description of the number, types, and locations of additional samples to be collected shall be included in this section of the sampling plan.

Descriptions of the following activities shall also be included:

i. *Waste Characterization*

Respondents shall include a program for characterizing the waste materials at the Facility. Waste materials include but are not limited to soils, loose waste materials, loose industrial by-products, construction materials, demolition debris, machinery, garbage, dusts, post-industrial debris and office or industrial equipment disposed of or present at the Facility above or below the ground. This activity shall include an analysis of current information/data on past disposal practices at the Facility.

ii. *Hydrogeologic Investigation*

Respondents shall include a program for determining the present and potential extent of groundwater contamination around the Facility. The plan shall include the degree of hazard, the mobility of pollutants, discharges/recharge areas, regional and local flow direction and quality, and local uses of groundwater. The plan shall also develop a strategy for determining horizontal and vertical distribution of contaminants. Upgradient samples shall be included in the plan.

iii. *Soils Investigation*

Respondents shall include a program to determine the extent of contamination of surface and subsurface soils both on-Facility and off-Facility.

iv. *Air Investigation*

Respondents shall include a program to determine the present and potential extent of atmospheric contamination from the various source areas at the Facility. The program shall address (a) the tendency of the substances identified through the waste characterization to enter the atmosphere; (b) local wind patterns; and (c) the degree of hazard.

v. *Sewer Investigation*

Respondents shall include a program to determine if the sewers located near the Facility have been affected or contaminated by the MMI Site.

C. *Sampling Procedures*

Respondents shall include a description of the depths of sampling, parameters to be analyzed, equipment to be used, decontamination procedures to be followed, sample quality assurance, data quality objectives and sample management procedures to be utilized in the field.

D. *Schedule*

Respondents shall include a schedule which identifies timing for initiation and completion of all tasks to be completed as part of this EE/CA Support Sampling Plan.

TASK 3: EE/CA SUPPORT SAMPLING

Respondents shall conduct the EE/CA Support Sampling activity according to the approved Sampling Plan and schedule. Respondents shall coordinate activities with U.S. EPA's Remedial Project Manager (RPM). Respondents shall provide the RPM with all laboratory data.

TASK 4: EE/CA DATA REPORT

According to the U.S. EPA-approved schedule in the EE/CA Support Sampling Plan, a report, in table form, shall be provided by Respondents to U.S. EPA. This report shall summarize the sampling results from both the EE/CA Support Sampling and from previous sampling events. If requested, copies of all raw data shall be provided by Respondents to U.S. EPA for a validation check.

TASK 5: ENGINEERING EVALUATION/COST ANALYSIS REPORT (EE/CA)

As required by section 300.415(b)(4) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), an EE/CA must be completed for all non-time critical removal actions under CERCLA. The goals of an EE/CA are to identify the objectives of the removal action and to analyze costs, effectiveness, and implementability of the various alternatives that may be used to satisfy these objectives. The EE/CA will conform to any guidance provided by U.S. EPA.

Respondents shall include the following sections in the EE/CA for the Master Metals Facility:

1. Executive Summary
2. Site Characterization
 - 2.1 Site Description and Background
 - 2.1.1 Facility Location and Physical Setting
 - 2.1.2 Present and Past Facility Operations
 - 2.1.3 Current and Past Owners/Operators
 - 2.1.4 Geology/Hydrology/Hydraulics
 - 2.1.5 Surrounding Land Use and Populations
 - 2.1.6 Sensitive Ecosystems
 - 2.1.7 Meteorology
 - 2.2 Previous Removal Actions
 - 2.3 Source, Nature, and Extent of Contamination
 - 2.4 Analytical Data
 - 2.5 Streamlined Risk Evaluation
 - 2.5.1 Human Health Risks
 - 2.5.2 Ecological Risks
3. Identification of Removal Action Objectives
 - 3.1 Determination of Removal Scope
 - 3.2 Determination of Removal Schedule
4. Identification and Analysis of Removal Action Alternatives
 - 4.1 Overall Protection of Public Health and the Environment
 - 4.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance
 - 4.3 Long-Term Effectiveness and Permanence
 - 4.3.1 Magnitude of Residual Risk
 - 4.3.2 Adequacy and Reliability of Controls
 - 4.4 Reduction of Toxicity, Mobility, or Volume Through Treatment
 - 4.5 Short-Term Effectiveness
 - 4.5.1 Protection of the Community
 - 4.5.2 Protection of the Workers
 - 4.5.3 Environmental Impacts

- 4.5.4 Time Until Response Objectives Are Achieved
- 4.6 Technical Feasibility
- 4.7 Administrative Feasibility
- 4.8 Availability of Services and Materials
 - 4.8.1 Personnel and Technology Availability
 - 4.8.2 Off-Site Treatment, Storage, and Disposal
 - 4.8.3 Availability of Services and Materials
 - 4.8.4 Availability of Prospective Technologies
- 4.9 State Acceptance
- 4.10 Community Acceptance
- 4.11 Cost
 - 4.11.1 Direct Capital Costs
 - 4.11.2 Indirect Capital Costs
 - 4.11.3 Long-Term Operation and Maintenance
- 5. Comparative Analysis of Removal Action Alternatives
- 6. Recommended Removal Action Alternative
- 7. Schedule for EE/CA Submission

1. Executive Summary

The Executive Summary shall provide a general overview of the contents of the EE/CA. It shall contain a brief discussion of the Facility and the current and/or potential threat posed by conditions at the Facility. It shall also identify the scope and objectives of the removal action and discuss the alternative responses.

2. Site Characterization

The Site Characterization shall summarize available data on the physical, demographic, and other characteristics of the Facility and surrounding areas. Specific topics that shall be addressed in the Site Characterization are detailed below. The Site Characterization shall concentrate on those characteristics necessary to evaluate and select an appropriate remedy.

2.1 Site Description and Background

The Site Description includes current and historical information. The following information shall be included where available and as appropriate given Site-specific conditions and the scope of the removal action. Other information shall also be included in the Site Description and Background where appropriate. The fact and information categories listed as subheadings to 2.1.1-2.1.7, below, are merely mandatory minimum components of 2.1.1-2.1.7. The 2.1.1-2.1.7 components are not limited to these data categories and other types of information shall also be included therein where appropriate.

2.1.1 Facility Location and Physical Setting

- USGS topographic map quadrangle
- Latitude/longitude
- Facility size/dimensions
- Boundary descriptions
- Land cover/vegetation/stresses to topography
- Utilities/transportation features
- Buildings/structures/improvements (including relative condition)
- Surface water bodies/conveyances
- Drainage channels/pathways
- Historically/archaeologically significant features

2.1.2 Present and Past Facility Operations

- Materials manufactured, stored, or disposed on-Facility
- Quantities of each contaminant and potential hazards
- Years of operation
- Present/prior Facility use
- Regulatory history, including previous responses, investigations and litigation by State, local, and Federal agencies

2.1.3 Current and Past Owners/Operators

- Names and addresses
- Names, telephone numbers, and titles of company representatives

2.1.4 Geology/Hydrology/Hydraulics

- Depth to aquifer(s)
- Soil types (surface and vadose zones)
- Local geological formations
- Surface water hydrology and hydrogeology (including watershed characterization)

2.1.5 Surrounding Land Use and Populations

- Residential, industrial, or commercial land
- Possible pathways of exposure
- Identification of sensitive populations
- Estimate of population densities within affected radius
- Description of drinking water sources
- Description of surface water uses (i.e., recreational or commercial)

2.1.6 Sensitive Ecosystems

- Wetlands, wildlife breeding areas (include maps)

- Wild and scenic rivers
- Connection to the human food chain or food of other organisms
- Sensitive and/or endangered species

2.1.7 Meteorology

- Rainfall/snowfall
- Temperature ranges
- Wind conditions
- Storm events (i.e., expected volumes entering watershed areas)

2.2 Previous Removal Actions

The Site Characterization section shall also describe in detail any previous removal actions at the Facility.

- Scope and objectives of the previous removal action(s)
- Amount of time spent on the previous removal action(s)
- Nature and extent of hazardous substances, pollutants, or contaminants treated or controlled during the previous removal action(s)
- Technologies used and/or treatment levels used for the previous removal action(s).

2.3 Source, Nature and Extent of Contamination

Site characterization data from previous sampling events should be included in this section, including tables to display the analytical data results. A description of the location of contaminants, the source of the contaminants, the type of contaminants found, the quantity, volume and magnitude of contamination, physical and chemical attributes of the hazardous substances, pollutants, or contaminants should be included.

A description of the current stability of the areas of contamination should be included and a description of the potential for further releases should also be included.

2.4 Analytical Data

This section shall present the available data, including, but not limited to, soil and groundwater sampling results. Data developed in previous investigations shall also be included.

2.5 *Streamlined Risk Evaluation*

The Respondents shall perform a streamlined risk evaluation using U.S. guidance. Prior to beginning the risk evaluation, the Respondents shall meet with the U.S. EPA to discuss an outline of the risk evaluation, including use of the U.S. EPA approved model and required assumptions to be used in the modeling exercise.

2.5.1 *Human Health Risks*

The contractor shall complete a streamlined risk evaluation that identifies the chemicals of concern at the Facility, provides an estimate of how and to what extent people might be exposed to these chemicals, and provides an assessment of the health effects associated with these chemicals. The risk evaluation shall project the potential risk of health problems occurring if no cleanup action is taken at the Facility.

The contractor shall refer to OSWER Publication 9285.7-01B, "Risk Assessment Guidance for Superfund Volume 1: Human Health Evaluation Manual, Part A, Interim Final" (December 1989), EPA/540/1-89/002, PB90-155581, for guidance on completing the streamlined risk evaluation.

2.5.2 *Ecological Risks*

The contractor shall complete a streamlined risk evaluation that identifies the chemicals of concern at the Facility, provides an estimate of how and to what extent ecological habitats might be exposed to these chemicals, and provides an assessment of the effects associated with these chemicals on various habitats.

This section shall also include a description of the study area's flora, fauna, and endangered/threatened species, wetlands and aquatic environment.

3. **Identification of Removal Action Objectives**

The EE/CA shall develop specific removal action objectives, taking into consideration the following factors:

- Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, pollutants, or contaminants;
- Actual or potential contamination of drinking water supplies or sensitive ecosystems;

- Hazardous substances in drums, barrels, tanks, or other bulk storage containers, that may pose a threat of release;
- High levels of hazardous substances, pollutants, or contaminants in soils largely at or near the surface that may migrate;
- Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;
- Threat of fire or explosion; and
- Other situations or factors that may pose threats to public health, welfare, or the environment.

3.1 Determination of Removal Scope

The EE/CA shall define the broad scope and specific objectives of the removal action and address the protectiveness of the removal action. The EE/CA shall discuss how the goals of the removal action are consistent with any potential long-term remediation.

3.2 Determination of Removal Schedule

Respondents shall include a general schedule for completing the removal action in the EE/CA. The schedule should include a start date for the removal taking into account time needed for design, and giving consideration of optimum weather conditions for conducting a removal action.

4. Identification and Analysis of Removal Action Alternatives

Based on the analysis of the nature and extent of contamination, and on the removal objectives developed in the previous section, this section shall identify and assess a limited number of alternatives that are appropriate for addressing the removal action objectives. This alternatives selection process shall also consider the CERCLA preference for treatment over conventional containment or land disposal approaches. The need for treatability studies shall be identified at this point.

Based on the available information, only the most qualified technologies that apply to the media or source of contamination shall be discussed in the EE/CA. The use of presumptive remedy guidance may also provide an immediate focus to the identification and analysis of alternatives.

Presumptive remedies involve the use of remedial technologies that have been consistently selected at similar sites or for similar contamination.

A limited number of alternatives, including any identified presumptive remedies, shall be selected for detailed analysis. Each of the alternatives shall be described with enough detail so that the entire treatment process can be understood. Technologies that may apply to the media or source of contamination shall be listed into the EE/CA. In some cases, it may be more appropriate to consider only a category of technologies. For example, on-Site incineration would be considered a technology category that may include rotary kiln, fluidized bed, etc.

Each alternative identified shall include a process description, a section regarding the advantages and disadvantages of the alternative, throughput rates, material handling requirements, operation and maintenance, residual disposal considerations, unit costs, and overall estimated costs.

The contractor shall also evaluate each alternative against the scope of the removal action and against each of the specific objectives for final disposition of the wastes and the level of cleanup desired. These objectives shall be discussed in terms of protectiveness of public health and the environment.

The objectives to be evaluated are:

4.1 Overall Protection of Public Health and the Environment

This discussion shall evaluate the degree to which the technology would effectively mitigate threats to public health and the environment. A discussion of how well each alternative is protective of public health and the environment should be provided in a consistent manner. The assessment of protection draws on assessments conducted under other evaluation criteria, including long-term effectiveness and permanence, short-term effectiveness, and compliance with ARARs.

Evaluation shall focus on how each alternative achieves adequate protection and describes how the alternative will reduce, control, or eliminate risks at the Site through the use of treatment, engineering, or institutional controls. Any unacceptable short-term impacts should be identified in this evaluation.

4.2 Compliance with ARARs and Other Criteria, Advisories, and Guidance

The detailed analysis shall summarize which requirements are applicable or relevant and appropriate to an alternative and describe how the alternative meets

those requirements. A summary table may be employed to list potential ARARs. All activities conducted as part of this removal action shall be performed in accordance with the requirements of all federal and state laws and regulations. In addition to ARARs, U.S. EPA may identify other Federal or State advisories, criteria, or guidance to be considered (TBC) for a particular release. TBCs are not required by the NCP; rather, TBCs are meant to complement the use of ARARs.

4.3 *Long-Term Effectiveness and Permanence*

This section shall include an evaluation to assess the extent and effectiveness of the controls that may be required to manage the risk posed by treatment residuals and/or untreated wastes at the Facility. The following components shall be considered for each alternative:

4.3.1 *Magnitude of Residual Risk*

This factor shall evaluate the effectiveness of the alternative, and assesses the risk from waste and residuals remaining at the conclusion of Site activities. The factor also evaluates whether the alternative contributes to future remedial objectives.

4.3.2 *Adequacy and Reliability of Controls*

Once the removal action is complete, there may be a need to maintain Post Removal Site Control (PRSC), which refers to those response activities that are necessary to sustain the integrity of a removal action following its conclusion.

4.4 *Reduction of Toxicity, Mobility, or Volume Through Treatment*

Respondents shall address U.S. EPA's policy of preference for treatment (i.e., for technologies that will permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as their principal element). This evaluation shall also be based upon the following components:

- The treatment process(es) employed and the material(s) that it will treat
- The amount of the hazardous materials to be destroyed or treated
- The degree of reduction expected in toxicity, mobility, or volume
- The degree to which treatment will be irreversible
- The type and quantity of residuals that will remain after treatment
- Whether the alternative will satisfy the preference for treatment

4.5 *Short-Term Effectiveness*

Respondents shall address the effects of the alternative during implementation until the removal objectives have been met. Each alternative shall be evaluated with respect to their effects on human health and the environment following implementation of the action. The following components shall be addressed for each alternative:

4.5.1 *Protection of the Community*

This factor shall address any risk to the community that results from implementation of the proposed action, whether from air quality impacts, fugitive dusts, transportation of hazardous materials, or other sources.

4.5.2 *Protection of the Workers*

This factor shall assess threats that may be posed to Facility workers and the effectiveness and reliability of protective measures that would be taken.

4.5.3 *Environmental Impacts*

The potential adverse environmental impacts from the implementation of each alternative would be evaluated with this factor. The factor also assesses the reliability of mitigation measures in preventing or reducing the potential impacts.

4.5.4 *Time Until Response Objectives are Achieved*

This is an estimate of the time needed to achieve protection for the Facility itself or for individual elements or threats associated with the Facility.

4.6 *Technical Feasibility*

The contractor shall provide an assessment of the technical difficulties associated with a technology. These difficulties were initially identified during the development of alternatives and are addressed again in detail for the alternative as a whole. Each alternative shall be evaluated for:

- The degree of difficulty in constructing and operating the technology
- The reliability of the technology, including but not limited to the frequency or complexity of equipment maintenance or controls

- The availability of necessary services and materials, including but not limited to the alternative's need for raw materials or a large technical staff
- The scheduling aspects of implementing the alternative during and after implementation
- The ability to monitor the effectiveness of the alternative, including but not limited to the frequency or complexity of equipment maintenance or controls
- The potential impacts on the local community during construction operation
- The environmental conditions with respect to set-up and construction and operation
- Compatibility with potential future remedial actions

4.7 *Administrative Feasibility*

The administrative feasibility factor evaluates those activities needed to coordinate with other offices and agencies. The administrative feasibility of each alternative shall be evaluated, including the need for off-Site permits, adherence to applicable non-environmental laws, and concerns of other regulatory agencies. Other components that shall be considered include, but are not limited to, statutory limits, permits and waivers.

4.8 *Availability of Services and Materials*

The contractor shall address the availability of sufficient off-Site treatment, storage, and disposal capacity, equipment, services and materials, and other necessary resources to implement an alternative. The availability of an alternative refers to whether the equipment, materials, and personnel can be secured in time to maintain the removal schedule. Other components that shall be considered and are related to the availability of implementing the alternative include:

4.8.1 *Personnel and Technology Availability*

It should be determined whether a specific removal action alternative will be available from the manufacturer so that the schedule can be met. Other technologies may require a large number of skilled laborers or specialists that may not be readily available.

4.8.2 *Off-Site Treatment, Storage, and Disposal*

If off-Site removal and treatment of the waste is being considered, the EE/CA shall address the adequacy of off-Site treatment, storage, and disposal capacity. It should also be determined if the treatment facility

accepting the material is in compliance with the off-Site policy and can accept the type of CERCLA waste at the Facility.

4.8.3 Availability of Services and Materials

This involves a consideration of such services as laboratory testing capacity and turnaround for chemical analyses, adequate supplies and equipment for on-Facility activities, or installation of extra utilities (e.g., power lines, sewer connections).

4.8.4 Availability of Prospective Technologies

Respondents shall assess whether specific technologies are generally available for use at the Facility. The EE/CA should indicate when a technology would be available for full-scale use.

4.9 State Acceptance

This factor evaluates the technical and administrative issues the State of Ohio may have regarding each of the alternatives. U.S. EPA will consider Ohio's concerns before recommending an alternative and making a final selection.

4.10 Community Acceptance

This assessment shall evaluate the issues and concerns that the affected public may have regarding each of the alternatives. As with State acceptance, the community acceptance of an alternative will be considered when U.S. EPA makes a recommendation of an alternative and when U.S. EPA makes a final selection.

4.11 Cost

Each removal action alternative shall be evaluated to determine projected costs. Each evaluation should include a comparison of capital and PRSC costs. Present worth costs should also be projected. Capital and PRSC costs include:

4.11.1 Direct Capital Costs

- Construction Costs
- Equipment and material costs
- Land and Facility acquisition costs
- Buildings and services costs
- Relocation expenses

- Transport and disposal costs
- Analytical costs
- Contingency allowances
- Treatment and operating costs

4.11.2 Indirect Capital Costs

- Engineering and design expenses
- Legal fees and license or permit costs
- Start-up and shakedown costs

4.11.3 Annual PRSC Costs

- Operational costs
- Maintenance costs
- Auxiliary materials and energy.

5. Comparative Analysis of Removal Action Alternatives

The contractor shall highlight the advantages and disadvantages among the alternatives. Only a brief narrative section is required for this section and comparison tables should be utilized to the maximum extent possible in order to simplify the analysis. Objectives/Criteria to be used in the Comparative Analysis include:

1. Effectiveness

Protectiveness

- a. Protective of public health and community
- b. Protective of workers during implementation
- c. Protective of the environment
- d. Complies with ARARs

Ability to Achieve Removal Objectives

- a. Level of treatment/containment expected to be achieved
- b. No residual effect concerns
- c. Will maintain control until long-term solution implemented (if applicable)

2. Implementability

Technical Feasibility

- a. Constructability and operational considerations
- b. Demonstrated performance/useful life

- c. Adaptable to environmental conditions
- d. Contributes to remedial performance
- e. Can be implemented in 1 year

Availability

- a. Availability of equipment
- b. Availability of personnel and services
- c. Availability of outside laboratory testing capacity
- d. Availability of off-Site treatment and disposal
- e. Availability of PRSC

Administrative Feasibility

- a. Permits required
- b. Easements or right-of-ways required
- c. Impact on adjoining property
- d. Ability to acquire institutional controls
- e. Likelihood of obtaining waiver from statutory limits (if needed)

3. *Cost*

- a. Capital Cost
- b. PRSC Cost
- c. Present Worth Cost

6. **Recommend Removal Action Alternative**

The Respondents shall include a section which recommends a removal action based on the comparative analysis in the previous section and describe the reasons for the recommendation. This description shall also summarize the EE/CA. This section shall clearly describe why the alternative is being recommended. The selection of a recommended removal alternative shall be made following discussions with the U.S. EPA RPM. U.S. EPA shall select the recommended alternative.

IV. DELIVERABLES

The deliverables required are as follows:

DOCUMENT

EE/CA Work Plan

DUE DATE

30 calendar days after effective date of
Administrative Order by Consent

Draft EE/CA Support Sampling Plan

15 calendar days after U.S. EPA approval of EE/CA Work Plan or revised EE/CA Work Plan

Final EE/CA Support Sampling Plan

15 calendar days after receipt of U.S. EPA comments regarding Draft EE/CA Support Sampling Plan

EE/CA Data Report

Pursuant to schedule in EE/CA Support Sampling Plan

Draft EE/CA Report

30 calendar days after U.S. EPA approval of EE/CA Data Report or revised EE/CA Data Report

Final EE/CA Report

30 calendar days after receipt of U.S. EPA comments regarding Draft EE/CA Report